

What is claimed is:

1. An isolated DcR3 polypeptide having at least about 80% amino acid sequence identity with native sequence DcR3 polypeptide comprising amino acid residues 1 to 300 of Fig. 1 (SEQ ID NO:1).

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2. The DcR3 polypeptide of claim 1 wherein said DcR3 polypeptide has at least about 90% amino acid sequence identity.

10 3. The DcR3 polypeptide of claim 2 wherein said DcR3 polypeptide has at least about 95% amino acid sequence identity.

15 4. The DcR3 polypeptide of claim 1 wherein said DcR3 polypeptide binds to Fas ligand.

15 5. An isolated native sequence DcR3 polypeptide comprising amino acid residues 1 to 300 of Fig. 1 (SEQ ID NO:1).

20 6. An isolated DcR3 polypeptide comprising amino acid residues 1 to 215 of Fig. 1 (SEQ ID NO:1).

25 7. An isolated DcR3 polypeptide comprising amino acid residues 1 to X, wherein X is any one of amino acid residues 215 to 300 of Figure 1 (SEQ ID NO:1).

25 8. An isolated TNFR homolog comprising a polypeptide which includes one or more cysteine rich domains, wherein said one or more cysteine rich domains comprises the amino acid sequence of CRD1, CRD2, CDR3 or CRD4 shown in Figure 6.

30 9. A chimeric molecule comprising the DcR3 polypeptide of claim 1 or the sequence of claim 7 fused to a heterologous amino acid sequence.

10. The chimeric molecule of claim 9 wherein said heterologous amino acid sequence is an epitope tag sequence.

35 11. The chimeric molecule of claim 9 wherein said heterologous amino acid sequence is an immunoglobulin sequence.

12. The chimeric molecule of claim 11 wherein said immunoglobulin sequence is an IgG Fc domain.

40 13. The chimeric molecule of claim 11 wherein said sequence comprises amino acid residues 1 to 215 of Fig. 1 (SEQ ID NO:1).

14. An antibody which binds to the DcR3 polypeptide of claim 1 or the sequence of claim 7.

5 15. The antibody of claim 14 wherein said antibody is a monoclonal antibody.

16. The antibody of claim 14 which comprises a blocking antibody.

10 17. The antibody of claim 14 which comprises a chimeric antibody.

18. The antibody of claim 14 which comprises a human antibody.

15 19. The antibody of claim 15 having the biological characteristics of the 4C4.1.4 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

20 20. The antibody of claim 15 having the biological characteristics of the 5C4.14.7 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

21. The antibody of claim 15 having the biological characteristics of the 11C5.2.8 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

25 22. The antibody of claim 15 having the biological characteristics of the 8D3.1.5 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

30 23. The antibody of claim 15 having the biological characteristics of the 4B7.1.1 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

35 24. The antibody of claim 15 wherein the antibody binds to the same epitope as the epitope to which the 4C4.1.4 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_ binds.

25. The antibody of claim 15 wherein the antibody binds to the same epitope as the epitope to which the 5C4.14.7 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_ binds.

40 26. The antibody of claim 15 wherein the antibody binds to the same epitope as the epitope to which the 11C5.2.8 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_ binds.

27. The antibody of claim 15 wherein the antibody binds to the same epitope as the epitope to which the 8D3.1.5 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_ binds.

5 28. The antibody of claim 15 wherein the antibody binds to the same epitope as the epitope to which the 4B7.1.1 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_ binds.

10 29. A hybridoma cell line which produces the antibody of claim 15.

30. The hybridoma cell line 4C4.1.4 deposited as ATCC accession number \_\_\_\_\_.

31. The hybridoma cell line 5C4.14.7 deposited as ATCC accession number \_\_\_\_\_.

15 32. The hybridoma cell line 11C5.2.8 deposited as ATCC accession number \_\_\_\_\_.

33. The hybridoma cell line 8D3.1.5 deposited as ATCC accession number \_\_\_\_\_.

20 34. The hybridoma cell line 4B7.1.1 deposited as ATCC accession number \_\_\_\_\_.

25 35. The 4C4.1.4 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

36. The 5C4.14.7 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

37. The 11C5.2.8 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

30 38. The 8D3.1.5 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

35 39. The 4B7.1.1 monoclonal antibody produced by the hybridoma cell line deposited as ATCC accession number \_\_\_\_\_.

40. Isolated nucleic acid comprising a nucleotide sequence encoding the DcR3 polypeptide of claim 1 or the sequence of claim 7.

41. The nucleic acid of claim 40 wherein said nucleotide sequence encodes native sequence DcR3 polypeptide comprising amino acid residues 1 to 300 of Fig. 1 (SEQ ID NO:1).

42. A vector comprising the nucleic acid of claim 40.

43. The vector of claim 42 operably linked to control sequences recognized by a host cell transformed with the vector.

5 44. A host cell comprising the vector of claim 42.

45. The host cell of claim 44 which comprises a CHO cell.

10 46. The host cell of claim 44 which comprises a yeast cell.

47. The host cell of claim 44 which comprises an *E. coli*.

15 48. A process of using a nucleic acid molecule encoding DcR3 polypeptide to effect production of DcR3 polypeptide comprising culturing the host cell of claim 44.

20 49. A non-human, transgenic animal which contains cells that express nucleic acid encoding DcR3 polypeptide.

50. The animal of claim 49 which is a mouse or rat.

25 51. A non-human, knockout animal which contains cells having an altered gene encoding DcR3 polypeptide.

52. The animal of claim 51 which is a mouse or rat.

30 53. A composition comprising the DcR3 of claim 1 or claim 7 and a carrier.

54. A composition comprising the DcR3 antibody of claim 14 and a carrier.

35 55. An article of manufacture, comprising a container and a composition contained within said container, wherein the composition includes DcR3 polypeptide or DcR3 antibodies.

56. The article of manufacture of claim 55 further comprising instructions for using the DcR3 polypeptide or DcR3 antibodies *in vivo* or *ex vivo*.

40 57. A method of modulating apoptosis in mammalian cells comprising exposing said cells to DcR3 polypeptide or a chimeric molecule comprising DcR3 polypeptide.

58. A method of inhibiting Fas ligand induced apoptosis in mammalian cells comprising exposing said cells to DcR3 polypeptide or a chimeric molecule comprising DcR3 polypeptide.

5 59. A method of inhibiting Fas ligand induced activity in mammalian cells comprising exposing said cells to DcR3 polypeptide or a chimeric molecule comprising DcR3 polypeptide.

10 60. A method of treating mammalian cancer comprising exposing mammalian cancer cells to DcR3 antibodies.

61. The method of claim 60 wherein a DcR3 gene is amplified in said cancer cells.

15 62. The method of claim 60 wherein said mammalian cancer cells are lung cancer cells or colon cancer cells.

63. The method of claim 61 wherein said mammalian cancer cells are also exposed to chemotherapy or radiation therapy.

28 64. A method of detecting or diagnosing cancer in a mammal comprising analyzing mammalian cells for amplification of a DcR3 gene.

65. A method of inhibiting a T-cell mediated immune response in a mammal, comprising exposing mammalian cells to DcR3 polypeptide or a chimeric molecule comprising DcR3 polypeptide.

66. An isolated nucleic acid comprising the nucleotide sequence of SEQ ID NO:3 or its complement.

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